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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

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ART UNIT

PAPER NUMBER

2131

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/665,215	DESHPANDE ET AL	
	Examiner	Art Unit	
	Kaveh Abrishamkar	2131	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 May 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 24 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on May 22, 2006 has been entered.

2. Claims 1-22 and 24 are currently pending consideration.

Response to Arguments

3. Applicant's arguments filed May 22, 2006 have been fully considered but they are not persuasive for the following reasons:

Regarding claim 1 and 8, the Applicant argues that the Cited Prior Art (CPA), Zeng et al. (U.S. Patent 6,505,299), does not explicitly disclose "transposition of coefficients ***limited to a direction*** along an axis orthogonal to said axis of packetization." This argument is not found persuasive. The Applicant argues that the CPA is not limited to a direction but instead has some of the coefficients transposed only along a direction orthogonal to the axis. However, the CPA contains a one to many relationship, and in certain embodiments discloses the "transposition of coefficients

limited to a direction along an axis orthogonal to the axis of packetization" (column 8 lines 36-43), wherein the CPA states that the block rotator selects a 90 degree orientation to the axis of packetization.

Furthermore, the Applicant argues that the CPA does not teach "selectively transposing at least one transform coefficient with a said transform coefficient from a different array." This argument is not found persuasive. The CPA discloses that an image is used to generate a transform coefficient map (column 3 lines 25-28). This transform coefficient map can be stored in any form, including a two-dimensional array (column 4 lines 46-50). This transform coefficient map is then encrypted by using one or more of many techniques (column 3 lines 25-35). One of the aforementioned techniques, includes partitioning the map into a set of two-dimensional coefficient blocks and shuffling selected blocks within the map (column 3 lines 30-36), and thereby, transposing selectively, transform coefficients. Therefore, it is respectfully asserted that the CPA does teach "selectively transposing at least one transform coefficient with a said transform coefficient from a different array."

Therefore, the examiner respectfully asserts that the cited prior art does teach or suggest the "selectively transposing at least one transform coefficient with a said transform coefficient from a different array, transposition of coefficients limited to a direction along an axis orthogonal to said axis of packetization." Therefore, the rejection is maintained for the pending claims 1-22 and 24 as given below.

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The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. The term "substantially" in claims 7, 14, 15, 20, 21, is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The term substantially qualifies the how parallel or orthogonal the transform coefficients are to the axis of packetization. But the specification does not define what degree is viewed as being substantially orthogonal or parallel.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-23 and 24 are rejected under 35 U.S.C. 102(e) as being anticipated by Zeng et al. (U.S. Patent 6,505,299).

The applied reference has a common assignee with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

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under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Regarding claim 1, Zeng discloses:

A method of scrambling a digital image comprising the steps of:

transforming respective values of pixels of said image into a plurality of arrays of transform coefficients each said array having at least one dimension oriented along an axis of packetization of said transform coefficients (Figure 3, column 3 lines 24-36, column 4 lines 39-50, column 5 lines 16-51); and

selectively transposing at least one said transform coefficient with a said transform coefficient from a different transposition of coefficients limited to a direction along an axis orthogonal to said axis of packetization (column 3 lines 24-36, column 4 lines 39-50, column 7 line 13 – column 8 line 54).

Regarding claim 8, Zeng discloses:

A method of scrambling a digital image comprising the steps of:

mapping a plurality of pixels of said image to a pixel block (column 3 lines 11-44);

transforming respective values of said pixels of said pixel block into a plurality of arrays of transform coefficients each said array having at least one dimension oriented

along an axis of packetization of said transform coefficients; (Figure 3, column 4 lines 39-50, column 5 lines 16-51); and

selectively transposing at least one said transform coefficient with a said transform coefficient from a different array, transposition of coefficients limited to a direction along an axis orthogonal to said axis of packetization (Figure 8, column 4 lines 39-50, column 7 line 13 – column 8 line 54).

Regarding claim 15, Zeng discloses:

A method of scrambling a sequence of digital images comprising the steps of:

selecting at least one said image for coding as a discrete image (column 3 lines 11 – 53);

transforming respective values of said pixels of said discrete image to a plurality of arrays of transform coefficients (Figure 3, column 3 lines 24-36, column 4 lines 39-50, column 5 lines 16-51);

selecting a plurality of said arrays arranged with respect to each other along a first axis of said image (column 3 lines 24-36, column 4 lines 39-50, column 7 line 13 – column 8 line 54);

transposing selective one or more coefficients of a first of said selected arrays with selective one or more coefficients of a second of said selected arrays, transposition of coefficients limited to a direction of said first axis, and being identified by a cryptographic key (Figure 10, column 3 lines 24-36, column 4 lines 39-50, column 7 line 13 – column 8 line 54); and

packetizing said coefficients of said plurality of arrays substantially along a second axis orthogonal to said first axis (column 3 lines 24-36, column 4 lines 39-50, column 7 line 13 – column 8 line 54).

Regarding claim 22, Zeng discloses:

An image encoder comprising:

a transform module to transform a plurality of image pixels to an array of transform coefficients (Figure 3, Figure 5 item 72, column 3 lines 24-36, column 4 lines 39-50, column 5 lines 16-51);

a scrambling buffer storing a first array and a second array of transform coefficients, said first and said second arrays representing portions of said image pixels arrayed along a first axis orthogonal to an axis of packetization of said transform coefficients (column 3 lines 24-36, column 4 lines 39-50, column 7 line 13 – column 8 line 54, column 10 lines 33-49);

a scrambler selectively transposing one or more coefficient pairs between said first array and said second array, transposition limited to the direction of said first axis; (column 3 lines 24-36, column 4 lines 39-50, column 7 line 13 – column 8 line 54); and

a scrambling key identifying a coefficient of said first array for selective transposition to said second array by said scrambler (Figure 13, column 9 lines 12-56).

Regarding claim 24, Zeng discloses:

A method of scrambling a digital image comprising the steps of:

transforming respective values of pixels of said image into a plurality of arrays of transform coefficients each said array having at least one dimension oriented along an axis of packetization of said transform coefficients (Figure 3, Figure 5 item 72, column 3 lines 24-36, column 4 lines 39-50, column 5 lines 16-51); and

selectively transposing at least one said transform coefficient with a said transform coefficient from a different said array, transposition of coefficients occurring only in a direction different from that of said axis of packetization (Figure 8, column 4 lines 39-50, column 7 line 13 – column 8 line 54).

Claim 2 is rejected as applied above in rejecting claim 1. Furthermore, Zeng discloses:

The method of claim 1 wherein said transposed transform coefficients occupy corresponding positions in said at least two arrays (Figure 10, column 7 line 38 – column 8 line 43).

Claim 3 is rejected as applied above in rejecting claim 1. Furthermore, Zeng discloses:

The method of claim 1 wherein said transformed value of said image pixels is a luminance of said pixels (column 5 lines 1-15, column 13 line 57 – column 14 line 4).

Claim 4 is rejected as applied above in rejecting claim 1. Furthermore, Zeng discloses:

The method of claim 1 wherein said transformed value of said image pixels is a chrominance of said pixels (column 5 lines 1-15, column 13 line 57 – column 14 line 4).

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Claim 5 is rejected as applied above in rejecting claim 1. Furthermore, Zeng discloses:

The method of claim 1 further comprising the step of altering a value of a transposed transform coefficient (Figure 16 item 162, column 9 lines 12-56).

Claim 6 is rejected as applied above in rejecting claim 1. Furthermore, Zeng discloses:

The method of claim 1 further comprising the step of altering a sign of a transposed transform coefficient if a value of said transform coefficient has a predefined relationship to a threshold value (Figure 16 item 162, column 9 lines 12-56).

Claim 7 is rejected as applied above in rejecting claim 1. Furthermore, Zeng discloses:

The method of claim 1 further comprising the step of selectively transposing at least one transform coefficient of at least two said arrays along an axis substantially parallel to an axis of packetization of said transform coefficients (column 7 line 13 – column 8 line 54).

Claim 9 is rejected as applied above in rejecting claim 8. Furthermore, Zeng discloses:

The method of claim 8 wherein said transposed transform coefficients occupy corresponding positions in said at least two arrays (Figure 10, column 7 line 38 – column 8 line 43).

Claim 10 is rejected as applied above in rejecting claim 8. Furthermore, Zeng discloses:

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The method of claim 8 wherein a luminance value of said pixels is transformed to said array of transform coefficients (column 5 lines 1-15, column 13 line 57 – column 14 line 4).

Claim 11 is rejected as applied above in rejecting claim 8. Furthermore, Zeng discloses:

The method of claim 8 wherein a chrominance value of said pixels is transformed to said array of transform coefficients (column 5 lines 1-15, column 13 line 57 – column 14 line 4).

Claim 12 is rejected as applied above in rejecting claim 8. Furthermore, Zeng discloses:

The method of claim 8 further comprising the step of altering a value of said transposed transform coefficients (Figure 16 item 162, column 9 lines 12-56).

Claim 13 is rejected as applied above in rejecting claim 8. Furthermore, Zeng discloses:

The method of claim 8 further comprising the step of altering a sign of a transposed transform coefficient if a value of said transform coefficient has a predefined relationship to a threshold value (Figure 16 item 162, column 9 lines 12-56).

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Claim 14 is rejected as applied above in rejecting claim 8. Furthermore, Zeng discloses:

The method of claim 8 further comprising the step of selectively transposing at least one transform coefficient of at least two said arrays along an axis substantially parallel to an axis of packetization of said transform coefficients (column 7 line 13 – column 8 line 54).

Claim 16 is rejected as applied above in rejecting claim 15. Furthermore, Zeng discloses:

The method of claim 15 wherein said coefficient of said second selected array occupies a same position in said second selected array as said replaced coefficient occupies in said first selected array (Figure 10, column 7 line 38 – column 8 line 43).

Claim 17 is rejected as applied above in rejecting claim 15. Furthermore, Zeng discloses:

The method of claim 15 wherein a luminance representation of said pixels is transformed to said array of transform coefficients (column 5 lines 1-15, column 13 line 57 – column 14 line 4).

Claim 18 is rejected as applied above in rejecting claim 15. Furthermore, Zeng discloses:

The method of claim 15 wherein a chrominance representation of said pixels is transformed to said array of transform coefficients (column 5 lines 1-15, column 13 line 57 – column 14 line 4).

Claim 19 is rejected as applied above in rejecting claim 15. Furthermore, Zeng discloses:

The method of claim 15 further comprising the step of altering a value of coefficient of said second of said selected arrays (Figure 16 item 162, column 9 lines 12-56).

Claim 20 is rejected as applied above in rejecting claim 15. Furthermore, Zeng discloses:

The method of claim 15 wherein said selected plurality of arrays arranged substantially along a first axis of said image includes a first and a second pluralities of said arrays, said first and said second pluralities aligned with said first axis but displaced from each other along said second axis (column 7 line 13 – column 8 line 54).

Claim 21 is rejected as applied above in rejecting claim 15. Furthermore, Zeng discloses:

The method of claim 15 further comprising the steps of:
selecting at least one image for prediction from said discrete image (column 3 lines 11 – 53);

determining a difference between said predicted image and said discrete image (column 5 line 33 – column 6 line 19);

transforming pixels of said difference to a plurality of arrays of transform coefficients (Figure 3, column 3 lines 24-36, column 4 lines 39-50, column 5 lines 16-51);

selecting a plurality said arrays arranged substantially along a first axis of said image (column 3 lines 24-36, column 4 lines 39-50, column 7 line 13 – column 8 line 54);

replacing a coefficient of a first of said selected arrays with a coefficient of a second of said selected arrays, said coefficients of said first and said second arrays being identified by a cryptographic key (Figure 10, column 3 lines 24-36, column 4 lines 39-50, column 7 line 13 – column 8 line 54); and

packetizing said coefficients of said plurality of arrays substantially along a second axis substantially orthogonal to said first axis (column 3 lines 24-36, column 4 lines 39-50, column 7 line 13 – column 8 line 54).

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kaveh Abrishamkar whose telephone number is 571-272-3786. The examiner can normally be reached on Monday thru Friday 8-5.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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